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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of Petition of the People of the State of California and the Public Utilities Commission of the State of California to Retain State Regulatory Authority over Intrastate Cellular Service Rates	)	PR Docket No. 94-105

CORRECTION TO THE DOCKET NUMBER ON REPLY COMMENTS

The County of Los Angeles hereby corrects the Docket Number on its Affidavit, filed as Reply Comments on October 19, 1994, from PR File No. 94-SP3 to PR Docket No. 94-105 and attaches a copy of the affidavit and its attachments with the corrected Docket Number. No other changes were made to the original filing.

Respectfully submitted,

COUNTY OF LOS ANGELES

By: Thomas H. Bugbee
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October 28, 1994

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Oct 19 '94

In the Matter of Petition of the People of the State of California and the Public Utilities Commission of the State of California to Retain State Regulatory Authority over Intrastate Cellular Service Rates	PR File No. 94-SP3

Dear Mr. Secretary:

The County of Los Angeles ("County") hereby submits the attached affidavit authored by Dr. Lee Selwyn and Dr. David Roddy, on behalf of the County, in response to comments submitted in the above proceeding.

The County supports the petition of the California Public Utilities Commission (CPUC) and urges the Federal Communications Commission to grant the requested regulatory authority to the CPUC.

The County emphasizes the importance of lower cellular rates, priority access for public safety and enhanced 9-1-1 services.

Respectfully submitted,

COUNTY OF LOS ANGELES

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(caton.oct)

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Petition of the People of the State of California and the Public Utilities Commission of the State of California	)	PR Docket No. 94-105
	)	
To Retain Regulatory Authority Over Intrastate Cellular Services	)	

Affidavit of Lee L. Selwyn and David J. Roddy

1. Our names are Lee L. Selwyn and David J. Roddy. We are, respectively, President and Vice President–Senior Economist at Economics and Technology, Inc. (ETI), One Washington Mall, Boston, Massachusetts 02108. Statements of our qualifications are attached hereto and made a part hereof.

2. The County of Los Angeles ("County") has asked us to review, analyze, and comment on the filings of the Cellular Telecommunications Industry Association ("CTIA"), AirTouch, and McCaw (collectively referred to herein as "the cellular commenters") in this Docket.[1]

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1. Opposition of the Cellular Telecommunications Industry Association, September 19, 1994; "Declaration of Bruce M. Owen on the California Petition," on behalf of McCaw Cellular Communications, September 19, 1994; and "Affidavit of Professor Jerry A. Hausman" on behalf of AirTouch Communications.

The County is a large purchaser of cellular telecommunications with annual expenditures of over $1.3-million.[2]

3. The County of Los Angeles supports the California Public Utilities Commission's ("CPUC") Petition to continue to regulate intrastate cellular rates for a period of 18 months.[3] The County was an active participant in the CPUC proceeding that led to the subject Petition.[4] Notwithstanding the extensive and compelling evidence adduced by the CPUC in support of its decision to petition the FCC for the right to retain regulatory jurisdiction over cellular rates in California, the Cellular Commenters here reiterate the very same flawed arguments they raised at the state level in their effort to convince the FCC that such regulation would be contrary to the public interest. The Cellular Commenters were wrong then, and they are wrong now.

4. Following an analysis of the cellular commenters' filings in this docket and based upon our expertise in economic regulation in telecommunications, cable television, and

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2. Comments of the County of Los Angeles ("Comments of LA County"), I.93-12-007, *Investigation on the Commission's Own Motion into Mobile Telephone Service and Wireless Communications*, February 25, 1994, at 10.

3. Petition of the People of the State of California and the Public Utilities Commission of the State of California to Retain State Regulatory Authority Over Intrastate Cellular Service Rates, *In the Matter of Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services*, PR File No. 94-SP3, August 8, 1994 ("Petition of CPUC").

4. See, Comments of the County of Los Angeles ("Comments of LA County"), I.93-12-007, *Investigation on the Commission's Own Motion into Mobile Telephone Service and Wireless Communications*, February 25, 1994; and Reply Comments of the County of Los Angeles, I.93-12-007, March 18, 1994.

cellular markets, we conclude that the County's position — which supports the CPUC's Petition — is the correct public policy conclusion at this time. Specifically, continued regulation by the CPUC of intrastate cellular rates in California is undeniably necessary and clearly in the public interest.

5. Rather than repeat the County's economic analysis here, this Affidavit incorporates the previous filings of the County in this Docket.[5] The sole purpose of this affidavit is to show that the cellular commenters' analyses as filed in September, 1994 are seriously deficient and therefore deserve no weight in the Commission's review.

The Hausman statistical analysis is seriously deficient according to both economic and econometric principles.

6. Both the AirTouch and the CTIA Comments include affidavits by Dr. Jerry A. Hausman. Although the text is not exact in each document, the analysis is the same. Dr. Hausman rests his case on two types of analysis. First, he calculates average cellular prices for a variety of Metropolitan Statistical Areas ("MSAs") and shows whether or not the state currently regulates intrastate cellular rates. Second, he estimates several statistical regression models, and claims that both of these techniques show that state regulation *causes* higher cellular prices.[6] Our analysis shows that his claims are both baseless and wrong.

7. For starters, Hausman fails to define precisely what he means by "regulation" as the

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5. *Id.*

6. Hausman CTIA Affidavit at 7 and Hausman AirTouch Affidavit at 6.

term is used in his regression analysis. To the best of our knowledge, no state presently applies LEC-type rate of return regulation (RORR) to cellular, and there is no uniform standard for setting cellular rates in existence across the country. Indeed, for the most part, states that currently "regulate" cellular rates may do little more than require the filing of tariffs and undertake minimal review thereof merely for purposes of assuring compliance with standard tariff filing rules and practices. Hausman offers no evidence, nor could he, that each and all of the states he claims "regulate" cellular rates actually apply price-constraining rules or have actually directed cellular carriers to set rates at levels different from those the carrier had itself proposed and filed.

8. However, notwithstanding the particular definition of cellular regulation that Hausman had in mind, he is in error as to the claim of *causality* flowing from regulation to cellular prices. Even if his regression analysis is interpreted as portraying *correlation* between regulation and prices, there is no possible basis for leaping from correlation to causality.

9. Fundamentally, Hausman confuses cause and effect relationships and claims that he can identify one without considering the other. Specifically, he claims that his Table 1 shows that regulation causes higher cellular prices.[7] He never even considers the alternative — that high cellular prices cause state regulation. In fact, Hausman's claim is of the "chicken and egg" variety.[8] This is the traditional cause and effect relationship that economists have

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7. Hausman CTIA Affidavit at para. 10.

8. That is, "Which came first, the chicken or the egg?"

Table 1

High Cellular Prices Cause States to Regulate Cellular Carriers

MSA Number	MSA Name	Regulation	Monthly Price
1	New York	Yes	$ 110.77
2	Los Angeles	Yes	$ 99.99
7	Boston	Yes	$ 82.16
9	San Francisco	Yes	$ 99.47
3	Chicago	No	$ 58.82
4	Philadelphia	No	$ 80.98
5	Detroit	No	$ 66.76
6	Dallas	No	$ 59.78
8	Washington	No	$ 76.89
10	Houston	No	$ 80.33

Source: Hausman CTIA Affidavit at para. 10.

debated over the last two decades in a variety of categories of economics.[9] Consider the hypothesis that a state will regulate cellular prices in areas where cellular prices are high

9. Economists and econometricians have made some progress in looking at "chicken and egg", and "causality" issues in a time series context. See, e.g., Sims, C., "Money, Income, and Causality", *American Economic Review*, Vol. 62, 1972, 540-552; Geweke, J., "Causality, Exogeneity, and Inference" in *Advances in Econometrics*, Cambridge: Cambridge University Press, 1982; and Geweke, J., "Inference and Causality in Economic Time Series Models", in Griliches, Z. and Intriligator, M., eds., *Handbook of Economics*, Vol. 2, New York: North Holland - Elsevier, 1984.

relative to other states — the reverse of Hausman's own hypothesis. An alternative interpretation of Hausman's results verifies our alternate hypothesis. Our results are shown in Table 1. Based on even a casual inspection of the data, one cannot reject the hypothesis that high cellular rates cause states to regulate cellular carriers. Thus, it is not state regulation which causes high cellular rates, it is high cellular rates which cause state regulation.

10. In fact, the direction of causality could have been addressed in a more direct manner in a more formal statistical model, had Hausman elected to do so. Hausman specifies a single equation regression model which has the price of cellular as the dependent variable and several explanatory variables including a state regulation variable which takes the value of 1 if a state regulates cellular or a 0 if it does not. Hausman interprets the coefficient of the regulation variable as the percent increase in cellular rates in states with regulation. However, it is well known that endogenous variables (such as the state regulation variable) which are included as explanatory variables create serious interpretation problems if they are not correctly handled.[10] A more accurate way to model this effect is to create a two equation model which includes both an explanation of why cellular prices vary around the country *as well as* an explanation of why states regulate cellular prices. This approach (which also allows for a zero-one dependent variable) was developed by Dr. James Heckman in 1978.[11] Since Hausman did not use this approach, his results are in error. Additional detail, which

10. See, e.g., W. Griffiths, R. Hill, G. Judge, *Learning and Practicing Econometrics*, New York: John Wiley and Sons, 1993, at 586-588.

11. J. Heckman, "Dummy Endogenous Variables in a Simultaneous Equations System", *Econometrica*, Volume 46, 1978, at 931-959. Also see: T. Amemiya, "The Estimation of a Simultaneous Equation Generalized Probit Model", *Econometrica*, Volume 46, 1978, at 1193-1205.

confirms our conclusion, is provided in the Technical Note attached to this Affidavit.

11. While Hausman could have undertaken the type of two equation analysis described in the preceding paragraph, it is not possible for us to do so *because Hausman has failed to include the underlying data upon which his own analysis was based.* The fact that this data has not been openly provided to the Commission makes it impossible to replicate or correct the Hausman analysis, and provides further basis as to why the Hausman model should be discarded.[12] Furthermore, the policy of the *American Economic Review* — one of the most important economics journals — is to require public availability of the data: "It is the policy of the *American Economic Review* to publish papers only if the data used in the analysis are clearly and precisely documented and are *readily available to any researcher for purposes of replication.*"[13] Surely, the Commission should apply the same standard to public policy issues of the importance of those in the instant docket.

12. Thus Hausman's analysis is seriously deficient according to both economic and econometric principles and the Commission should give no weight to the conclusions that he reaches. His analysis fails to consider the serious likelihood that high cellular prices cause states to regulate cellular carriers; in fact, the little data that Hausman has made available

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12. In contrast, when challenged to provide important underlying data to support its claims before the Commission in the FCC LEC Price Caps Review (FCC CC Docket 94-1) in June of 1994, the United States Telephone Association ("USTA") immediately provided such data. *Response of the United States Telephone Association to Ad Hoc's Motion to Compel and Motion for Extension of Time*, June 2, 1994 in FCC CC Docket No. 94-1, *In the Matter of Price Cap Performance Review For Local Exchange Carriers.*

13. *American Economic Review*, Vol. 84, No. 4, September, 1994, second page of Table of Contents immediately preceding page 753.

supports this conclusion. Thus cellular carriers do exert monopoly power and accordingly, the CPUC's Petition should be granted.

The Owen-Besen relevant product market analysis is incorrect on its face because it seeks to include products, services, and industries which do not yet exist.

13. The McCaw Comments include an affidavit by Dr. Bruce Owen.[14] The CTIA comments cited an attached study by Dr. Stan Besen *et al.*[15] In both documents, the economists attempt to diminish the apparent market power of the cellular carriers by expanding the relevant product market. However, in so doing they include products which do not yet exist as alternatives to cellular, a point discussed at considerable length by the County of Los Angeles in its Comments to the CPUC.[16] Principally, they cite Specialized Mobile Radio ("SMR") and Enhanced Specialized Mobile Radio ("ESMR") services as well as the services which will eventually be offered via the 2 gigahertz Personal Communications Services ("PCS") spectrum that the Commission is offering at auction beginning December 5, 1994.

14. The kind of market expansion inherent in the Owen and Besen analyses are literally based on speculation as to future market developments. These same arguments were made to

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14. "Declaration of Bruce Owen on the California Petition" on behalf of McCaw Cellular Communications, 19 September 1994.

15. S. Besen, R. Larner, J. Murdoch, "An Economic Analysis of Entry By Cellular Operators into Personal Communication Services", Charles River Associates, November 1992, attached to CTIA September, 1994 Petition.

16. Comments of LA County at 42-45. These Comments were submitted by the County to the FCC in the instant proceeding on September 16, 1994.

the California PUC, which expressly determined that no close substitutes to cellular presently exist.[17] Indeed, the CPUC's determination that cellular regulation should be continued was heavily driven by this conclusion.

15. There is broad agreement among economists that the "relevant product market" concept is a useful framework for the analysis of market power. For example, Scherer and Ross state, "The essence of monopoly power is the ability to raise prices above competitive levels. A key market definition question, therefore, is: what boundaries circumscribe the set of firms positioned to thwart attempts by the merging firms persistently to raise prices?"[18] As has been used both in antitrust and regulatory policy, the relevant product market is defined by the reasonable interchangeability of use and the cross elasticity of demand.[19] As explained by the Commission itself late last month in its report on competition in cable television markets, "Defining the 'relevant market', a concept drawn from antitrust law, is an important first step in assessing whether a firm has market power, i.e., 'the power to control market prices and exclude competition'."[20]

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17. Petition of CPUC at 63.

18. F. M. Scherer and S. Ross, *Industrial Market Structure and Economic Performance, Third Edition*, Boston: Houghton Mifflin Company, 1990 at 178. Note that although Scherer and Ross mention the concept in the context of mergers, it is applicable generally to many public policy decisions.

19. See, e.g., *Brown Shoe Co. v. U.S.*, 370 U.S. 294, at 344 (1962) among others. An example of the cross elasticity of demand is the percent change in the quantity demanded of beef given a one percent change in the price of pork. If this cross elasticity is sufficiently positive, it implies that the two products are substitutes and should be included in the same relevant product market.

20. FCC 94-235, First Report, FCC CS Docket 94-48, *In the Matter of Implementation of*
(continued...)

16. The key question in this docket is whether or not the Commission should include products and services which do not yet exist. Most "product market" studies consider only existing products and services. In contrast, the Owen and Besen argument rests on inclusion of 2 gigahertz PCS services as well as SMR / ESMR services such as those planned by Nextel. It is a fact that broadband PCS telecommunications services do not yet exist. The auction for 99 licenses is currently scheduled to *begin* December 5, 1994.[21] Additional auctions are scheduled to be held for other licenses in early 1995. Once the spectrum is purchased, a variety of key tasks will be required before PCS service is offered: spectrum clearing, real estate acquisition, standard setting, cell site construction, interconnection agreement negotiation, fulfillment of any applicable state Public Utility Commission requirements, as well as the development of marketing and advertising programs. It seems remote that PCS service will be offered within the next 18 months; this is the extent of the CPUC's request. The existence of SMR and ESMR depend primarily on the efforts of Nextel who — after the collapse of the deal with MCI — is expected to encounter serious financial problems.[22] Furthermore, technical problems with the Nextel approach have been

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20. (...continued)
Section 19 of the Cable Television Consumer Protection and Competition Act of 1992 - Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, Released September 28, 1994 at para. 38, footnotes omitted.

21. See, e.g., FCC Report No. AUC-94-04, Auction No. 4, "Commercial Mobile Radio Service Information - Auction Notice and Filing Requirements for 99 MTA Licenses Located on the A and B Blocks for Personal Communications Services in the 2 GHz Band", Released September 19, 1994.

22. *See*, *Wall Street Journal*, "MCI Calls Off Plan to Buy 17% of Nextel", August 29, 1994 which states, "Moreover, Nextel badly needs the cash that MCI had promised." Also, see *Telecommunications Reports*, "Nextel, MCI Scuttle Investment Plan, Rethink Options," September 5, 1994.

encountered in Los Angeles and San Francisco.[23] These facts imply that two way wireless telephone alternatives to cellular do not yet exist.

17. As noted in the original submissions in this docket, the County has many uses for cellular phone services. These include uses by the Sheriff's Department, the Fire Department, the Department of Children Services, the Department of Beaches and Harbors, the Department of Health Services, the Department of Public Social Services, the Department of the Coroner, the Department of Parks and Recreation, the Los Angeles Public Defender, and the Treasurer and Tax Collector.[24] The uses described in the County's Comments are inherently the kinds which require a "wireless" communications service. The question that the Commission must address in the determination of the relevant product market is whether there is some existing and available wireless telephone service other than cellular which is "reasonably interchangeable" with cellular *for the use and function described by the County.* Clearly, there are no good substitutes right now. Therefore, the cellular carriers have significant market power and without regulation could charge excessive monopoly prices for their services.

18. Since any reasonable analysis of the product market would not include services not yet in existence, this analysis clearly supports regulation for at least another 18 months — as the CPUC requests. Accordingly, the Owen and Besen speculations are an inadequate economic basis for public policy determination. At the expiration of the 18 month time

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23. *Telephony*, "Technical Problems Dim Nextel's Glimmer," August 15, 1994 at 7.

24. Comments of LA County at 5-9.

period, the extent of PCS and ESMR competition to cellular carriers can be re-evaluated and any appropriate actions can be taken.

Accordingly, the economic analyses of the cellular commenters is seriously deficient and should be given no weight in the Commission's analysis.

19. The above analysis clearly leads to the conclusion that cellular carriers do exert monopoly power and accordingly, the CPUC's Petition should be granted. With regard to Hausman's analysis of the relationship between cellular rates and state regulation, our analysis shows that it is seriously deficient according to both economic and econometric principles; the Commission should give no weight to the conclusions that he reaches. His analysis fails to consider the serious likelihood that high cellular prices cause states to regulate cellular carriers; in fact, the little data that Hausman has made available supports this conclusion. With regard to the Owen and Besen relevant product market argument, there is no economic theory which implies that one should include non-existent products and services into the definition of the market. For the uses specified above at the present time, there exist no "reasonably interchangeable" services which the County could use as substitutes for cellular service. Therefore, the analyses by Owen and Besen are in error and the Commission should reject their recommendations. The conclusion at this time is inescapable: the cellular carriers have significant market power and without regulation are likely to charge excessive monopoly prices for their services.

The foregoing statements are true and correct to the best of our knowledge, information and belief.

David J. Roddy

Lee L. Selwyn

Sworn to before me this 18th day of October, 1994.

Michele A. Dignum
Notary public

My commission expires January 6, 2000

Technical Note

In the text at paragraph 10, we discuss the error of the approach which ignores the endogeneity of the state regulation variable that Dr. Hausman uses in his analysis. His approach is faulty for at least two reasons. First, the economic model must recognize that possibility that states with high cellular prices are more likely to regulate cellular rates. Second, the econometric method used to estimate the ultimate must recognize the two equation system that is under investigation. This two equation specification is widely known and accepted by econometricians.[25]

The correct specification can be represented by the following two equation simultaneous model:

$$\begin{aligned} \textit{Price} &= \alpha * \textit{State regulation} + \beta' X + \epsilon_1 \\ \textit{State regulation} &= \gamma * \textit{Price} + \delta' Z + \epsilon_2 \ . \end{aligned} \tag{1}$$

where

Price = average cellular price by state

State regulation = 1 if state regulates cellular, else 0

X = a set of explanatory variables which explain the variation of Price

Z = a set of explanatory variables which explain the variation of regulation

ϵ_1 , ϵ_2 *are random errors* .

This cures the problem created by Hausman's approach which estimates only the first

25. This model originated in Heckman, *op. cit.*, footnote 11. In addition, see, e.g., G. Maddala, *Limited Dependent and Qualitative Variables in Econometrics*, Cambridge, U.K.: Cambridge University Press, 1983, at 242-252; T. Fomby, R. Hill, and S. Johnson, *Advanced Econometric Methods*, New York, NY: Springer-Verlag, 1984, at 562-566; and G. Judge, W. Griffiths, R. Hill, H. Lutkepohl, and T. Lee, *The Theory and Practice of Econometrics, Second Edition*, New York, NY: John Wiley and Sons, 1985, at 787-788.

equation — and thus suffers from "simultaneous equations bias". While one cannot know with certainty the results of estimation of such a model, it is clear that states with high cellular rates are more likely to regulate cellular carriers than those with low cellular rates. Thus estimation of only one equation such as Hausman's approach is likely to produce a positive effect of regulation on price when in reality either no effect — or even a negative one — occurs in reality. Clearly, the simple approach advocated by Hausman is inadequate to address the problem; therefore his results should be discarded and given no weight in the Commission's evaluations.

CERTIFICATE OF SERVICE

I, Carolyn Rueda, hereby certify that on this 28th day of October, 1994 copies of the foregoing were mailed postage prepaid to the parties on the attached list.

Carolyn Rueda

Carolyn Rueda

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